WYOMING DEPARTMENT OF AGRICULTURE
ANALYTICAL SERVICES
1174 Snowy Range Road
Laramie, Wyoming 82070
Phone: (307)-742-2984 FAX: 307-742-2156
Web Site : http://wyagric.state.wy.us/aslab/aslab.htm e-mail: aslab@state.wy.us

WATER SAMPLING INSTRUCTIONS

READ CAREFULLY AND COMPLETELY BEFORE SAMPLE COLLECTION

Call the laboratory if you have questions.

GENERAL PROCEDURES AND INFORMATION

Relevant to your request for water analysis, laboratory personnel have prepared and shipped to you the appropriate sample containers. These bottles, vials and/or Whirl-Paks contain the correct preservatives. **DO NOT RINSE THESE BOTTLES PRIOR TO FILLING.** Depending on the parameters to be determined, the number of bottles supplied will vary. If more than one source is to be sampled, relevant to your request, it will be necessary to separate the bottles into sets. The label on each bottle will identify the set and the preservative (eg. Set No. 1, Plain; Set No. 1, HNO3; Set No. 1, H2SO4; Set No. 2, Plain; etc.)

Samples must be representative of the discharge stream, monitoring well or the potable water distribution system. For potable water, the tap used for sampling MUST NOT be a mixing valve and must be clean and free of aerators, strainers, hose attachments and purification devices. You must be able to regulate the flow at the sampling tap. A steady flow of water should be maintained for **3 - 5 minutes** prior to sampling. Collect the samples as per the instructions on the following pages. DO NOT remove the cap from more than one bottle at a time. After filling that bottle, re-cap it before proceeding to the next bottle in the set, **NOTE:** Water samples for lead and copper testing have specific sampling requirements, which take precedence over this general requirement.

After filling the bottles, cap tightly, and with a pen containing permanent ink fill out the requested information on the bottle label and the **Water Analysis Request and Collection Report.** Retain a copy of the water analysis request and collection report for your records and return the original and the samples to the laboratory for analysis. We recommend all paper work sent with the samples be placed in a ***ZIP LOCK*** storage bag. This will protect reports, letters, checks, etc. from water if a sample container should leak in transit.

In order to conform to E.P.A. sampling practices the collected samples should be returned to the laboratory in the same cooler in which the bottles were shipped to you. Note: Before shipping the samples to the lab, it will be necessary to freeze the ice packs which were shipped with your sample bottles. Samples should be collected and shipped early in the week, no later than Wednesday. You will need to evaluate the method of transportation in light of the analyses requested. For example, water requiring a total coliform determination must be received by the laboratory within 30 hours of collection, therefore you will have to coordinate collection with the mode and class of transportation.

Because the data generated relative to the analysis of your samples may be used to fulfill E.P.A. monitoring requirements, these procedures must be followed. Failure to follow recommended procedures will cause the laboratory to reject your samples for analysis.

We strongly recommend the collection report, any other documents and checks be placed in a zip-lock bag before placing them in the shipping container.

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BACTERIOLOGICAL SAMPLING

Drinking water samples collected for bacteriological (total coliform) analysis **MUST** be collected in sterile containers using aseptic techniques. We recommend the use of sterile whirl-paks for bacteriology samples. Other containers may be used but they must be thoroughly cleaned and both the container and lid must be boiled for at least 20 minutes prior to filling with the sample water. We also recommend that you thoroughly clean and rinse the faucet, the sink, your hands and the area adjacent to the sampling tap prior to sample collection. **Remember, you must remove the aerator from the sampling tap before sample collection**.

If the source is chlorinated a whirl-pak containing thiosulfate should be used; if not chlorinated, a plain whirl-pak should be used. In either case the bags are sterile. Tear the top of the bag off at the perforations and fill 3/4 full (a minimum of 100 milliliters). Pull outward on the ears of the bag and while holding firmly **spin** the bag around the top at least 3 times, bend the ears up and twist them together to hold the top in place, package carefully and ship back to the laboratory for analysis (see the next page for more details on the use of Whirl-Pack's). NOTE: It is important to have some air in the bag between the top of the water and the top of the sealed whirl-pak.

Drinking water supplies should be received by the laboratory within **30 hours** of collection, and **need not be refrigerated.** Discharge or sewage samples **must be refrigerated** after collection and must to be received by the laboratory within 6 hours of collection.

We strongly recommend, you collect and ship samples on Monday, Tuesday or Wednesday. You may hand deliver samples to the lab Monday through Friday. We appreciate it if bacteriology samples arrive before 3:00 in the afternoon.

INORGANIC CHEMISTRY
and
PESTICIDE RESIDUE SAMPLING

Remove the caps from the bottles, one at a time, fill, re-cap, fill out the label, cool to 4 degrees C. (40 degrees F.) as soon after collection as possible, and return the samples to the laboratory for analysis using the methods outlined in **General Procedures and Information.**

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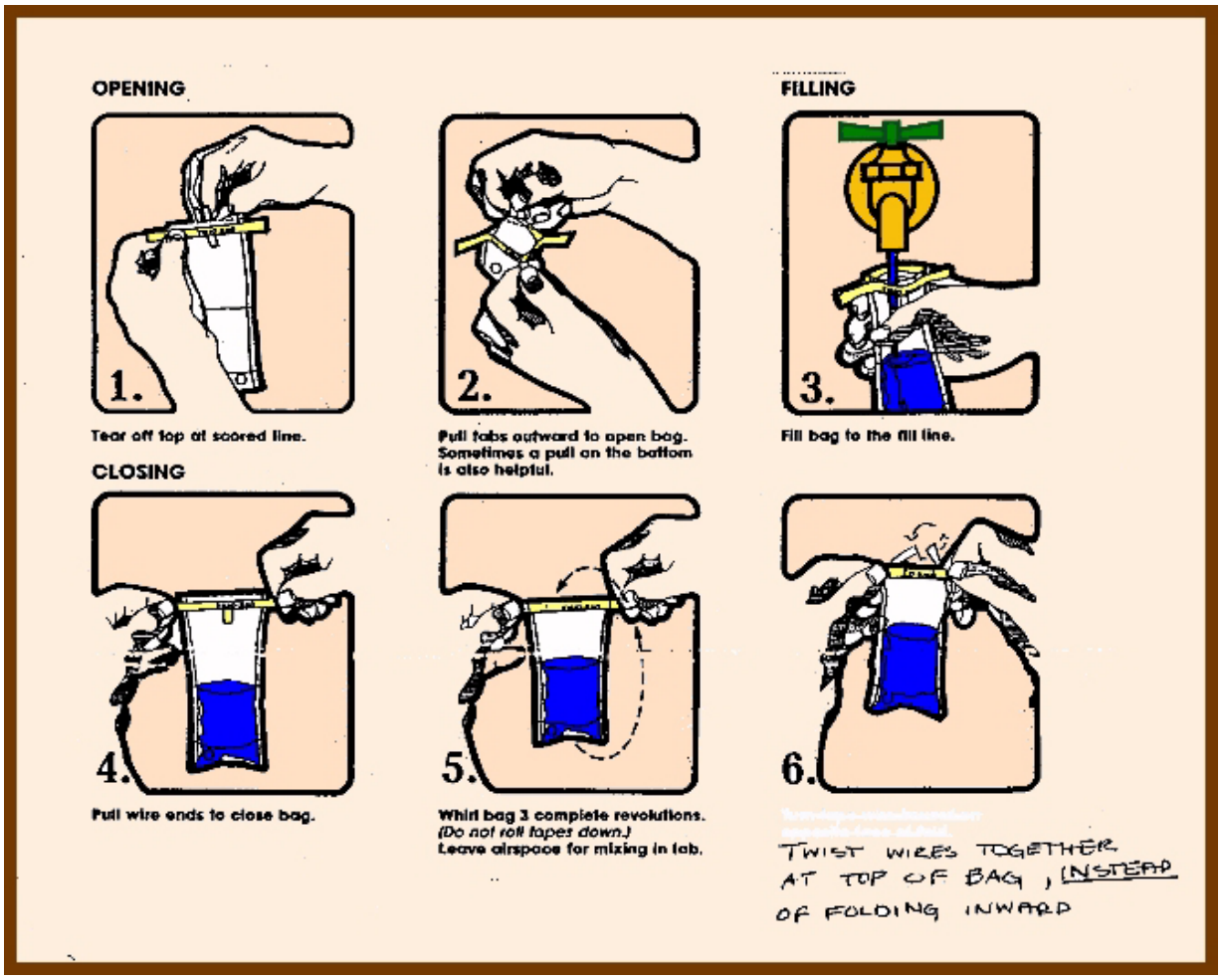
USING THE WHIRL-PACK for BACTERIOLOGICAL ANALYSIS of WATER



Be sure your hands, the sample tap and the immediate work area are clean. Using the above diagram as a guide, perform the following steps. Remove the aerator from the faucet and let the water run for at least 5 minutes.

1. Carefully tear off the top of the whirl-pack at the perforations.
2. Pull the mouth of the whirl-pack open using the tabs on the outside center of the seal.
3. Slowly fill the bag with water to about ¾ or the top of the white label. A minimum of 100 ml is required for analysis.
4. When filled, gently pull the wire/tape ears on the top, until the mouth of the bag is closed.
5. Press the bag against the edge of the counter top until 1 inch of air remains between the water and the seal. Turn the seal back towards yourself ½ turn and then spin the bag **rapidly** around the seal **three times.** The weight of the water against the seal makes the final seal tight.
6. Twist the wire ends together and bend towards the top of the bag and away from the bag to avoid poking a hole in the bag.

When packaging the sample to send to the laboratory, position the bag in the upright position and use wadded up newspaper to hold it in that position. Place all paperwork in a zip-lock bag, to keep it dry.

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VOLATILE ORGANIC CHEMICALS (VOC's) and TRIHALOMETHANES, TOTAL OR TOTAL MAXIMUM POTENTIAL SAMPLING INSTRUCTIONS

GENERAL INFORMATION

Trihalomethanes are usually determined and/or required on chlorinated drinking water supplies. There are two forms of this analysis: Total Trihalomethanes (THM), which reflects the trihalomethanes in the water at the time of collection and thus at the time of consumption and Total Maximum Potential Trihalomethanes, which yields the highest concentration of trihalomethanes achievable in the water. Volatile Organic Chemical (VOC) analyses are generally required on all public water supplies. THM's are a subset of VOC's and therefore the sampling is very similar.

We will send you 3 each 40 milliliter septum vials for each sampling location. If you are requesting total trihalomethanes or VOC's, the vials will contain a small amount of sodium thiosulfate to quench any residual chlorine in the sample. For total maximum potential trihalomethanes the three 40 milliliter septum vials are empty. Do not rinse the vials or lose the sodium thiosulfate. The vials are sent to you pre-assembled, with the two part teflon/silicone rubber septum oriented in the proper direction. The teflon side of the septum must face the water in the vial.

SAMPLING INSTRUCTIONS

1. THM and/or VOC samples must be taken at a cold water tap, with all screens, filters, aerators, etc. removed. Let the water run long enough to clear all water, which has been standing in the lines (usually 5 to 15 minutes).
2. Using a clean well rinsed 2 - 4 cup glass measuring cup, fill by allowing the water being sampled to slowly run down the side of the cup, until it is 1/2 to 3/4 full. *This step is important in obtaining a representative sample in each of the three septum vials.*
3. Remove the septum cap from each of the three vials and carefully pour the water in the measuring cup down the side of the vial, until it forms a dome over the top of the vial. (**FOR VOC ANALYSIS ONLY:** Place two drops of 6N Hydrochloric Acid on the top of each sample in the vials. The hydrochloric acid is contained in a small dropper bottle inside the wide mouth plastic jar.) **CAUTION: Protect skin, eyes and clothing from contact with hydrochloric acid. For skin contact, wash with cool water followed by soap and water. For eye contact, flush eyes with cool water for 5-15 minutes and contact a physician.**
4. Carefully replace the septum cap on each vial and tighten with care. A good sample should contain no entrained air bubbles. Rinse off the outside of each vial and dry. Label each vial with the sample ID, the same identification as shown on the sampling report. Use tape and a pen with permanent ink.
5. Place the samples, the jar containing the hydrochloric acid dropper vial, the frozen gel packs and the sample collection report back in the cooler and return to the laboratory as soon as possible.

IF YOU HAVE ANY QUESTIONS, CONTACT THE LABORATORY PRIOR TO SAMPLING!

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LEAD and COPPER TESTING OF DOMESTIC WATER and SAMPLING INSTRUCTIONS - Community Supply

READ CAREFULLY BEFORE PROCEEDING

BACKGROUND

The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lead is a health concern at certain levels of exposure. There is currently established maximum contaminant level (MCL) for lead is 0.015 milligrams/liter (mg/L) and the MCL for copper is 1.3 mg/L.

EPA and others are concerned about lead in drinking water. Too much lead in drinking water can cause serious damage to the brain, kidneys, nervous system and red blood cells. The greatest risk is to young children and pregnant women. Lead levels in your drinking water are likely to be highest:

a. if your home or water system has lead pipes;

b. if your home has copper pipes joined with lead solder;

c. if your home was built before 1985;

d. if you have soft or acidic water;

e. if water sits in the pipes for several hours between uses.

Dissolved lead cannot be seen in water. Testing of drinking water is the only way to determine if high levels of dissolved lead are present. The Wyoming Department of Agriculture's Chemistry Laboratory is certified to perform lead analyses on drinking water. Current studies have shown that two samples taken from the kitchen faucet will give the consumer the best indication of the level of lead they are exposed to during their daily activities.

SAMPLING

Sample 1 - reflecting the interior plumbing condition, is taken immediately upon opening the faucet using the large 1000 milliliter bottle. **The water should have been standing in the pipes for at least 6 hours prior to sample collection.**

Sample containers may be obtained by contacting the laboratory. The bottles will have a small amount of concentrated nitric acid inside. **These containers have to be handled carefully, as this acid can cause severe skin burns or damage to the eyes.** If nitric acid gets in the eyes, flush immediately with water for at least 15 minutes and contact a physician. If nitric acid gets on the skin wash with water and then with soap and water. A copy of the material safety data sheet (MSDS) for nitric acid is available upon request from the laboratory.

The cost of analyzing the sample is $22.00. Results will be sent directly to you by the laboratory. You **must** complete the **WATER ANALYSIS AND COLLECTION REPORT** and return it along with the sample to the laboratory.

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LEAD and COPPER TESTING OF DOMESTIC WATER and SAMPLING INSTRUCTIONS - Private Supply

READ CAREFULLY BEFORE PROCEEDING

BACKGROUND

The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lead is a health concern at certain levels of exposure. There is currently established maximum contaminant level (MCL) for lead is 0.015 milligrams/liter (mg/L) and the MCL for copper is 1.3 mg/L.

EPA and others are concerned about lead in drinking water. Too much lead in drinking water can cause serious damage to the brain, kidneys, nervous system and red blood cells. The greatest risk is to young children and pregnant women. Lead levels in your drinking water are likely to be highest:

a. if your home or water system has lead pipes;

b. if your home has copper pipes joined with lead solder;

c. if your home was built before 1985;

d. if you have soft or acidic water;

e. if water sits in the pipes for several hours between uses.

Dissolved lead cannot be seen in water. Testing of drinking water is the only way to determine if high levels of dissolved lead are present. The Wyoming Department of Agriculture's Chemistry Laboratory is certified to perform lead analyses on drinking water. Current studies have shown that two samples taken from the kitchen faucet will give the consumer the best indication of the level of lead they are exposed to during their daily activities.

SAMPLING

Sample 1 - reflecting the interior plumbing condition, is taken immediately upon opening the faucet using the large 1000 milliliter bottle. **The water should have been standing in the pipes for at least 6 hours prior to sample collection.**

Sample 2 - reflecting the lead level of water being consumed, is taken after the tap has been opened and allowed to run for 5 to 15 minutes using the small 250 milliliter bottle.

Sample containers may be obtained by contacting the laboratory. The bottles will have a small amount of concentrated nitric acid inside. **These containers have to be handled carefully, as this acid can cause severe skin burns or damage to the eyes.** If nitric acid gets in the eyes, flush immediately with water for at least 15 minutes and contact a physician. If nitric acid gets on the skin wash with water and then with soap and water. A copy of the material safety data sheet (MSDS) for nitric acid is available upon request from the laboratory.

The cost of analyzing the two samples is $34.00. Results will be sent directly to you by the laboratory. You **must** complete the **WATER ANALYSIS AND COLLECTION REPORT** and return it along with the two water samples to the laboratory.